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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,147	01/08/2001	Cletus N. Welch	1582A1	4411

24959 7590 02/27/2003

PPG INDUSTRIES INC
INTELLECTUAL PROPERTY DEPT
ONE PPG PLACE
PITTSBURGH, PA 15272

EXAMINER

BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 02/27/2003

to

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/755,147

Applicant(s)

WELCH ET AL.

Examiner

Melanie D. Bissett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Claims 7, 10, and 18 have been amended in response to the examiner's interpretation of the claims. The examiner now interprets claim 7 to limit the polycarbonate polyol to fit formula I, interprets claim 10 to limit component (b) to be present and selected from a specified group, and interprets claim 18 to limit the catalyst as present and selected from a specified group.
2. The rejection based on 35 USC 112 has been withdrawn based on the applicant's arguments. However, the rejection based on 35 USC 103 has been maintained.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over PPG Industries, Inc. in view of Ammons.
5. From a prior Office action:
 8. PPG discloses photochromic polyurethane coatings having a Fischer microhardness of 50-150 N/mm², ΔOD of 0.15 after 30 seconds, ΔOD of 0.28 after 8 minutes, and a bleach rate of less than 50 seconds (p. 5 line 3-p. 6 line 4). The coatings are prepared by reacting an isocyanate with a hard-segment-producing polyol and a soft-segment-producing polyol (p. 12 lines 13-20) with an optional catalyst (p. 11 line 25-p. 12 line 7) in the presence of a photochromic compound (p. 23 lines 13-30). Preferred isocyanates include isophorone diisocyanate blocked with methyl ethyl ketoxime (p. 10 lines 22-32), and preferred photochromic compounds include those of the applicant's claim 17 (p. 23 lines 13-30).
 9. The reference teaches the use of soft-segment-producing polyols including polyester or polyether polyols with molecular weights of 500-10,000 g/mol (p. 15 lines 1-3; p. 15 line 31-p. 16 line 1), also teaching the use of hard-segment-producing polyols including polyacrylic polyols with

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molecular weights of 500-50,000 g/mol (P. 13 lines 10-17; p. 20 lines 19-27). PPG suggests the use of copolymers of (meth)acrylic monomers with the ethylenically unsaturated monomers of the applicant's claim 11 for hard-segment-producing polyols (p. 21 lines 7-25). However, PPG does not suggest the use of polycarbonate polyols having the claimed molecular weight for forming the polyurethanes.

10. Ammons teaches polycarbonate urethane compositions having improved weathering resistance, UV stability, low crystallinity, and impact resistance over a wide temperature range (col. 2 lines 5-36), where the urethane compositions are produced by reacting a diisocyanate with a polycarbonate diol having a molecular weight of 500-5000 g/mol (col. 2 lines 64-68). To obtain the beneficial results of the invention, a mixture of linear and cycloaliphatic diols is employed in the formation of the polycarbonate diol (abstract). Ammons notes a conventional process for polycarbonate formation, where the aliphatic and cycloaliphatic diols are reacted with their respective bischloroformate derivatives (col. 3 lines 15-19). Since 1,6-hexanediol and 1,4-cyclohexane dimethanol are noted as preferred diols (col. 2 lines 59-63), the reference suggests the use of a respective bischloroformate derivative, hexanediol bis(chloroformate).

11. One of ordinary skill in the art would recognize that the aliphatic and cycloaliphatic character of the diols used to form the polycarbonate diols would yield a soft, flexible segment in the resulting polymer. Therefore, it is the examiner's position that it would have been prima facie obvious to use the polycarbonate diols of Ammons' teaching as soft-segment-producing diols in PPG's polyurethanes. It is also the examiner's position that, because of the similarity of the applicant's urethane compositions with those of the combined references, the coating resulting from PPG and Ammons would possess the applicant's claimed swell properties. Motivation for choosing the polycarbonate diols would have been to form polyurethane coatings having reduced crystallinity (i.e. lower haze and increased transparency) while also having improved impact resistance over wide temperature ranges and excellent weathering resistance.

12. Regarding the applicant's claimed primer and protective hardcoats, PPG notes the use of both primers and protective coatings, where the primer is applied between the substrate and urethane coating (p. 29 lines 1-3). The protective coatings applied to the urethane coatings include organosilane coatings (p. 29 lines 11-17). PPG also teaches the use of the applicant's claimed substrates (p. 27 lines 8-17), preferring thermoplastic polycarbonate substrates for use in optical materials. Ophthalmic lenses having refractive indices of 1.48-1.75 are noted (p. 33 lines 9-18).

6. Additionally, it is noted that PPG specifically notes the preference for 1,4-diazabicyclo[2.2.2]octane, dibutyltin diacetate, and dibutyltin dilaurate catalysts (p. 12 lines 5-7).

Response to Arguments

7. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is the examiner's position that it would have been prima facie obvious to use the polycarbonate diols of Ammons' teaching in the polyurethane coatings of PPG for the purpose of reducing crystallinity and improving weathering resistance of the coatings. PPG notes the use of soft-segment-producing diols in the polyurethane coating composition, and Ammons notes the reduced crystallinity in polyurethanes using the specified polycarbonate diols (col. 2 lines 25-36). The polyurethanes of Ammons' invention have excellent weathering resistance, making them useful in bilayer laminates. Since both references are drawn to coatings of similar composition, both references indicate the use of soft or low-crystallinity segments, and both references teach applications concerned with UV exposure and weathering, it is the examiner's position that the combination of references is proper.

8. Regarding the claimed swell properties, it has been the examiner's position that, since the combination of references would teach coating compositions substantially similar to those of the claimed invention, the coating of the combination of references

would inherently possess the applicant's claimed swell property. Although the secondary reference does not teach motivation for the applicant's claimed swell properties, Ammons does teach motivation for using a specified polycarbonate polyol in polyurethane coating compositions. It is the examiner's position that the swell property would inherently be present a combination as presented above.

9. In response to applicant's argument that the secondary reference does not provide the swell property, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

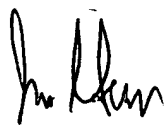
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb
February 19, 2003



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700